WHAT IS CLAIMED IS:

1. An inspection system comprising:

a remote controlled robotic vehicle including a sensor package capable of non-destructive testing of a structure;

a control station that provides control data to the remote controlled robotic vehicle to guide the remote controlled robotic vehicle around the structure.

2. An inspection system as claimed in claim 1, wherein the remote controlled vehicle includes a main chassis, an extendable mast coupled to the main chassis, and an articulating arm coupled to the extendable mast.

3. An inspection system as claimed in claim 2, wherein the main chassis includes a propulsion system.

4. An inspection system as claimed in claim 3, wherein the propulsion system includes at least one electric motor and a battery.

5. An inspection system as claimed in claim 2, wherein the main chassis includes electronic control systems including a wireless communication system that enables communications between the robotic vehicle and the control station.

6. An inspection system as claimed in claim 2, wherein the extendable mast includes a plurality of telescoping mast sections, wherein a first mast section is coupled to the main chassis and the articulating arm is coupled to a further mast section.

7. An inspection system as claimed in claim 6, wherein the primary movement of the telescoping mast sections is controlled by a motor and cable drive system.

8. An inspection system as claimed in claim 7, wherein the further mast section includes a fine positioning mechanism to finely position the articulating arm.

9. An inspection system as claimed in claim 8, wherein the fine positioning system comprises a rack and pinion drive system.

10. An inspection system as claimed in claim 2, wherein the articulating arm includes a mounting assembly that is coupled to the extendable mast, an outer tube assembly coupled to the mounting assembly at a first end, and an articulating head assembly located adjacent a second end of the outer tube assembly.

11. An inspection system as claimed in claim 10, wherein the articulating head assembly includes a main body and a sensor mounting assembly coupled to the main body.

12. An inspection system as claimed in claim 11, wherein the articulating arm further includes an inner tube assembly coupled to a main body of the articulating head assembly, a drive shaft coupled to sensor mounting assembly, a motor for rotating the inner tube assembly, and a motor for rotating the drive shaft, wherein rotation of the inner tube assembly causes the sensor mounting assembly to rotate in a first degree of rotation and rotation of the drive shaft caused the sensor mounting assembly to rotate in a second degree of rotation.

13. An inspection system as claimed in claim 1, wherein the sensor package includes an acoustic pulse generator and a vibrometer.

14. An inspection system as claimed in claim 13, wherein the acoustic pulse generator includes a main body, first and second electrodes coupled to the main body, and a flame arrestor.

15. An inspection system as claimed in claim 14, wherein the flame arrestor comprises a plurality of parallel plates.

16. An inspection system as claimed in claim 1, wherein the robotic vehicle includes a plurality of collision avoidance sensors.

17. An inspection system as claimed in claim 1, wherein the control station prepares an inspection plan based on a digitized map of the structure to be tested and defines a path that the robotic vehicle will travel around the structure based on the inspection plan.

18. An inspection system as claimed in claim 1, wherein the control station performs analysis of data generated by the sensor package to identify anomalies in the structure being tested.